

## REMARKS

### Obvious-type Double Patenting Rejection

The Examiner has rejected Claims 1-23, all of the claims in this application, under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-22 of Patent 6,303,744 (Meador et al) in view of the Hayashi et al Patent 5,914,385. In part, the Examiner states that the claimed polyimides of this application have the same thermal-oxidative stability as the polyimides with a specific dicarboxylic acid endcap i.e. 3,6-epoxy- 1,2,3,6-tetrahydrophthalic anhydride; and therefore the substitution of the one endcap for the other would be considered obvious in view of the Hayashi et al patent. The Examiner further states that although the Hayashi et al patent differs by not disclosing the specific endcaps claimed by applicants, patentees do teach that the polyimides are used to produce preregs.

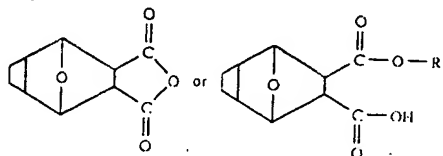
In brief, the Examiner concludes that it would have been obvious to use the endcap of Hayashi et al i.e. exo-3,6-epoxy-1,2,3,6-tetrahydrophthalic anhydrides in preparing the polyimides set forth in the claims of the instant application, and therefore the claims of this application are rejected on the grounds of obvious-types double patenting over the claims (1-22) of applicants Patent No. 6,303,744.

Applicants have carefully studied the Examiners rejection on the grounds of obvious-type double patenting, and respectfully traverse the rejection for the following reasons.

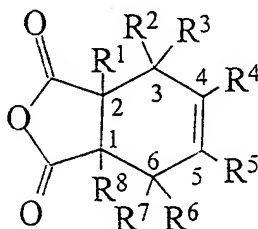
The Hayashi et al patent (5,914,385) discloses polyimides with a specific endcap i.e. exo-3,6-epoxy-1,2,3,6-tetrahydrophthalic anhydrides; see the claims and col. 8 lines 45-60 where the endcap is specifically disclosed. Here patentees state that the exo-3,6-

epoxy-1,2,3,6-tetrahydrophthalic anhydride and the exo-3,6-epoxy-1,2,3,6-tetrahydrophthalic monoesters are used as a terminal stopper in the polyimide resins.

Patentees endcaps are represented by the following formulas:



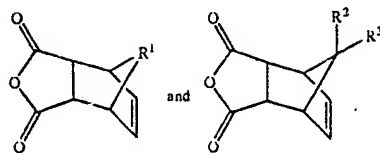
In comparison, applicants are not claiming an epoxy-1,2,3,6-tetrahydrophthalic anhydride, but to the contrary are claiming endcaps having the formula:



wherein aromatization in the reaction is inhibited and the endcap is primarily crosslinking; see page 9 lines 8-10, and page 12 lines 15-20 of the specification.

Therefore, for this reason alone one skilled in the art would not have used the epoxy-containing endcaps of Hayashi et al in place of the endcaps used by applicants as set-forth in the claims of the instant application. For purposes of discussion, however, if one skilled in the art were to use the epoxy-containing endcaps of Hayashi et al in place of the endcaps claimed by applicants, the resulting polyimides still would not be the same

endcaps disclosed in the Meador et al patent 6,303,744. The Meador et al patent claims endcaps having the formula:



If the Examiner compares all three of the above endcap formulas, the Examiner would see that all three of the endcaps are different and that there is no comparison of one endcap formula in view of the other and therefore, one skilled in the art would not substitute applicants endcapped polyimides with the epoxy-containing endcaps of Hayashi et al. Moreover, there is no suggestion in either of the patents for the Examiner to conclude that the claims of this application are subject to the rejection of obvious-type double patenting over the claims of the Meador et al patent 6,303,744. As shown by the above formulas, the endcaps are mutually exclusive and neither the Meador et al patent nor this application suggest the use of an epoxy-containing endcaps as disclosed by Hayashi et al.

In determining whether a non-statutory basis exist for a double patenting rejection, the Examiner should determine if the instant application claims a polyimide endcap that is an obvious variation of the endcaps claimed in the Meador et al patent. A double-patenting rejection of the obviousness-type is analogous to the nonobviousness requirement of 35 USC 103. Therefore, the Examiner should point-out the similarity between the claimed endcaps in the instant application and the endcaps set forth in the claims of 6,303,744 and the reasons why one of ordinary skill in the art would conclude it would be obvious to substitute the endcaps of Hayashi et al in preparing the endcapped

polyimides claimed in the instant application. The fact that Hayashi et al claims polyimides having “thermal-oxidative stability” is not a basis to conclude that the endcaps claimed by applicant are the same as the epoxy-containing endcap polyimides disclosed by Hayashi et al.

For example, in a double patenting rejection, a test for “same invention” is whether the claims of one patent would be infringed without literally infringing the other. Thus, the question is whether the claimed invention i.e. endcaps of this application would be obvious in view of the claims of the Meador et al patent in view of Hayashi et al. Another important distinction is that the exo-3,6-epoxy-1,2,3,6-epoxy anhydrides of Hayashi et al are oxygen-bridged cyclohexene anhydrides. These anhydrides do not cross-link as disclosed by applicants endcaps on page 13 lines 11-15 of the specification. In addition, in comparison to the exo-3,6-epoxy anhydrides of Hayashi et al, the endcaps set-forth in the claims of this application oxidize in a controlled process which increases the long term stability of the polyimides and therefore temperatures can be raised in the process, and the lifetime of the polyimides prolonged. As shown by the above formulas, the endcaps of the polyimides claimed in this application are mutually distinct from the endcapped polyimides of the Meador et al patent (6,303,744) and the substitution of the epoxy-containing anhydride endcaps of Hayashi et al does not provide the basis for an obvious-type double patenting.

The burden is on the Examiner to provide some suggestion that the claimed invention of this application and the claims of 6,303,744 are obvious in view of the prior art e.g. Hayashi et al. There must be some suggestion in the prior art that applicants' endcaps can be modified or substituted for the endcaps of the prior art reference, and that

there is some reasonable expectation of success of the product or process after making the substitution.

The Examiner has cited U.S. patents 5,288,842; 6,274,699 and 4,376,733 to show the state of the art for preparing polyimides and the compositions thereof, but the Examiner has not relied on these references. Applicants have studied these patents and also have concluded that they are not pertinent to the claims of this application, and therefore require no further consideration.

## CONCLUSION

The Examiners' rejection of all the claims 1-23 of this application on ground of obvious-type double patenting is respectfully traversed. Applicants have distinguished the claims of this application over the Meador et al and Hayashi et al patents as stated herein and therefore it is applicants contention that all the claims in this application are in condition for allowance, and the application should pass to issue. An early action to this effect is earnestly solicited.

Respectfully submitted,

MaryAnn B. Meador et al



By: Kent N. Stone, Esq.  
Attorney of Record  
Reg. No. 31,883  
MS-500-118  
NASA GLENN RESEARCH CENTER  
21000 Brookpark Rd.  
Cleveland, Ohio 44135-3191

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Phone: (216) 433-8855  
Fax: (216) 433-6790